AMENDMENTS TO THE CLAIMS

1. (Allowed) An isolated T2R44 variant-specific nucleic acid molecule comprising at least about 10 contiguous nucleotides, spanning at least one single nucleotide polymorphism (SNP) selected from T at position 103, C at position 423, A at position 599, G at position 649, T at position 680, A at position 718, G at position 744, G at position 827 and A at position 843 of SEQ ID NO: 33.

2. (Allowed) An array, comprising the nucleic acid molecule of claim 1.

3. (Currently amended) The array of claim 2, ~~comprising~~further comprising at least one nucleic acid molecule comprising at least about 10 contiguous nucleotides selected from T2R1, T2R3, T2R4, T2R5, T2R7, T2R8, T2R9, T2R10, T2R13, T2R14, T2R16, T2R38, T2R39, T2R40, T2R41, T2R43, T2R44, T2R45, T2R46, T2R47, T2R48, T2R49, T2R50, and T2R60, and spanning at least one SNP ~~identified as new in Figure 1~~,selected from the group consisting of: C/T at position 128 (SEQ ID NO: 1); A/G at position 332 (SEQ ID NO: 1); G/A at position 422 (SEQ ID NO: 1); C/T at position 616 (SEQ ID NO: 1); C/T at position 675 (SEQ ID NO: 1); T/C at position 850 (SEQ ID NO: 1); C/T at position 349 (SEQ ID NO: 3); C/T at position 807 (SEQ ID NO: 3); C/T at position 852 (SEQ ID NO: 3); G/A at position 8 (SEQ ID NO: 5); G/C at position 9 (SEQ ID NO: 5); A/C at position 17 (SEQ ID NO: 5); T/C at position 20 (SEQ ID NO: 5); T/A at position 186 (SEQ ID NO: 5); C/T at position 221 (SEQ ID NO: 5); G/C at position 286 (SEQ ID NO: 5); G/A at position 512 (SEQ ID NO: 5); G/A at position 571 (SEQ ID NO: 5); G/A at position 58 (SEQ ID NO: 7); G/T at position 77 (SEQ ID NO: 7); C/T at position 235 (SEQ ID NO: 7); C/T at position 338 (SEQ ID NO: 7); G/A at position 363 (SEQ ID NO: 7); G/A at position 500 (SEQ ID NO: 7); G/A at position 638 (SEQ ID NO: 7); G/T at position 881 (SEQ ID NO: 7); A/T at position 787 (SEQ ID NO: 9); C/T at position 788 (SEQ ID NO: 9); C/A at position 828 (SEQ ID NO: 9); G/A at position 912 (SEQ ID NO: 9); A/G at position 496 (SEQ ID NO: 11); G/A at position 549 (SEQ ID NO: 11); T/C at position 829 (SEQ ID NO: 11); G/A at position 922 (SEQ ID NO: 11); C/A at position 201 (SEQ ID NO: 13); T/A at position 450 (SEQ ID NO: 13); T/C at position 560 (SEQ ID NO: 13); G/T at position 867 (SEQ ID NO: 13); C/A at position 880 (SEQ ID NO: 13); C/T at position 910 (SEQ ID NO: 13);

C/T at position 926 (SEQ ID NO: 13); A/G at position 120 (SEQ ID NO: 15); C/T at position 467 (SEQ ID NO: 15); A/C at position 521 (SEQ ID NO: 15); A/G at position 564 (SEQ ID NO: 15); G/A at position 627 (SEQ ID NO: 15); A/G at position (SEQ ID NO: 17); A/G at position 256 (SEQ ID NO: 19); G/A at position 375 (SEQ ID NO: 19); C/T at position 300 (SEQ ID NO: 21); G/A at position 301 (SEQ ID NO: 21); G/C at position 303 (SEQ ID NO: 21); T/C at position 460 (SEQ ID NO: 21); T/G at position 516 (SEQ ID NO: 21); G/A at position 665 (SEQ ID NO: 21); G/A at position 846 (SEQ ID NO: 21); C/G at position 145 (SEQ ID NO: 23); G/A at position 239 (SEQ ID NO: 23); C/T at position 785 (SEQ ID NO: 23); C/T at position 820 (SEQ ID NO: 23); G/A at position 886 (SEQ ID NO: 23); C/T at position 578 (SEQ ID NO: 25); G/A at position 589 (SEQ ID NO: 25); G/A at position 874 (SEQ ID NO: 25); C/A at position 560 (SEQ ID NO: 27); G/A at position 817 of T2R40 (SEQ ID NO: 27); G/A at position 189 (SEQ ID NO: 29); C/T at position 380 (SEQ ID NO: 29); T/A at position 584 (SEQ ID NO: 29); G/C at position 104 (SEQ ID NO: 31); G/A at position 270 (SEQ ID NO: 31); G/C at position 460 (SEQ ID NO: 31); T/G at position 510 (SEQ ID NO: 31); G/T at position 599 (SEQ ID NO: 31); G/A at position 635 (SEQ ID NO: 31); C/G at position 663 (SEQ ID NO: 31); T/G at position 882 (SEQ ID NO: 31); T/C at position 883 (SEQ ID NO: 31); A/G at position 889 (SEQ ID NO: 31); C/T at position 103 (SEQ ID NO: 33); T/C at position 423 (SEQ ID NO: 33); T/A at position 484 (SEQ ID NO: 33); G/A at position 599 (SEQ ID NO: 33); C/G at position 649 (SEQ ID NO: 33); C/T at position 680 (SEQ ID NO: 33); G/A at position 718 (SEQ ID NO: 33); A/G at position 744 (SEQ ID NO: 33); C/G at position 827 (SEQ ID NO: 33); G/A at position 843 (SEQ ID NO: 33); T/C at position 106 (SEQ ID NO: 35); T/A at position 682 (SEQ ID NO: 35); G/A at position 749 (SEQ ID NO: 35); C/T at position 862 (SEQ ID NO: 35); G/A at position 934 (SEQ ID NO: 37); G/A at position 920 (SEQ ID NO: 37); T/G at position 842 (SEQ ID NO: 37); T/G at position 756 (SEQ ID NO: 37); C/T at position 84 (SEQ ID NO: 39); G/A at position 94 (SEQ ID NO: 39); A/C at position 326 (SEQ ID NO: 39); T/C at position 418 (SEQ ID NO: 39); A/T at position 456 (SEQ ID NO: 39); A/G at position 673 (SEQ ID NO: 39); T/C at position 719 (SEQ ID NO: 39); G/C at position 799 (SEQ ID NO: 39); G/A at position 885 (SEQ ID NO: 39); C/T at position 895 (SEQ ID NO: 39); A/G at position 156 (SEQ ID NO: 41); C/T at position 261 (SEQ ID NO: 41); G/A at position 421 (SEQ ID NO: 41); C/A at position 429 (SEQ ID NO: 41); C/A at position 442 (SEQ ID NO: 41); G/A at position 516 (SEQ ID NO: 41); A/G at position 706 (SEQ ID NO: 41); T/C at position 755 (SEQ ID NO: 41); G/T at position

764 (SEQ ID NO: 41); A/C at position 808 (SEQ ID NO: 41); G/A at position 608 (SEQ ID NO: 43); A/T at position 595 (SEQ ID NO: 45); and C/T at position 930 of T2R60 (SEQ ID NO: 45).

4. (Currently amended) The array of claim 2, ~~comprising~~further comprising at least one oligonucleotide from each T2R haplotype/allele selected from T2R1 (SEQ ID NO: 47), T2R3 (SEQ ID NO: 53), T2R4 (SEQ ID NO: 61), T2R5 (SEQ ID NO: 73), T2R7 (SEQ ID NO: 87), T2R8 (SEQ ID NO: 97), T2R9 (SEQ ID NO: 109), T2R10 (SEQ ID NO: 131), T2R13 (SEQ ID NO: 133), T2R14 (SEQ ID NO: 137), T2R16 (SEQ ID NO: 145), T2R38 (SEQ ID NO: 165), T2R39 (SEQ ID NO: 167), T2R40 (SEQ ID NO: 171), T2R41 (SEQ ID NO: 185), T2R44 (SEQ ID NO: 193), T2R46 (SEQ ID NO: 207), T2R47 (SEQ ID NO: 215), T2R48 (SEQ ID NO: 223), T2R49 (SEQ ID NO: 239), T2R50 (SEQ ID NO: 255) and T2R60 (SEQ ID NO: 261)~~listed in Table 7~~.

5. (Allowed) The array of claim 2, which array is a microarray.

6. (Currently amended) A collection [[of]]comprising two of more isolated T2R variant-specific nucleic acid molecules, each comprising at least about 10 contiguous nucleotides spanning at least one T2R SNP position ~~listed in Table 7,~~selected from the group consisting of: position 332 of T2R1 (SEQ ID NO: 47); position 616 of T2R1 (SEQ ID NO: 47); position 349 of T2R3 (SEQ ID NO: 53); position 8 of T2R4 (SEQ ID NO: 61); position 17 of T2R4 (SEQ ID NO: 61); position 20 of T2R4 (SEQ ID NO: 61); position 186 of T2R4 (SEQ ID NO: 61); position 221 of T2R4 (SEQ ID NO: 61); position 268 of T2R4 (SEQ ID NO: 61); position 512 of T2R4 (SEQ ID NO: 61); position 77 of T2R5 (SEQ ID NO: 73); position 235 of T2R5 (SEQ ID NO: 73); position 338 of T2R5 (SEQ ID NO: 73); position 500 of T2R5 (SEQ ID NO: 73); position 638 of T2R5 (SEQ ID NO: 73); position 881 of T2R5 (SEQ ID NO: 73); position 254 of T2R7 (SEQ ID NO: 87); position 538 of T2R7 (SEQ ID NO: 87); position 640 of T2R7 (SEQ ID NO: 87); position 787 of T2R7 (SEQ ID NO: 87); position 788 of T2R7 (SEQ ID NO: 87); position 912 of T2R7 (SEQ ID NO: 87); position 142 of T2R8 (SEQ ID NO: 97); position 370 of T2R8 (SEQ ID NO: 97); position 496 of T2R8 (SEQ ID NO: 97); position 829 of T2R8 (SEQ ID NO: 97); position 922 of T2R8 (SEQ ID NO: 97); position 201 of T2R9 (SEQ ID NO: 109); position 381 of T2R9 (SEQ ID NO: 109); position 450 of T2R9 (SEQ ID NO: 109); position 560

of T2R9 (SEQ ID NO: 109); position 697 of T2R9 (SEQ ID NO: 109); position 867 of T2R9 (SEQ ID NO: 109); position 880 of T2R9 (SEQ ID NO: 109); position 467 of T2R10 (SEQ ID NO: 131); position 521 of T2R10 (SEQ ID NO: 131); position 691 of T2R10 (SEQ ID NO: 131); position 776 of T2R13 (SEQ ID NO: 133); position 256 of T2R14 (SEQ ID NO: 137); position 589 of T2R14 (SEQ ID NO: 137); position 301 of T2R16 (SEQ ID NO: 145); position 481 of T2R16 (SEQ ID NO: 145); position 516 of T2R16 (SEQ ID NO: 145); position 665 of T2R16 (SEQ ID NO: 145); position 145 of T2R38 (SEQ ID NO: 165); position 239 of T2R38 (SEQ ID NO: 165); position 785 of T2R38 (SEQ ID NO: 165); position 820 of T2R38 (SEQ ID NO: 165); position 886 of T2R38 (SEQ ID NO: 165); position 578 of T2R39 (SEQ ID NO: 167); position 589 of T2R39 (SEQ ID NO: 167); position 560 of T2R40 (SEQ ID NO: 171); position 817 of T2R40 (SEQ ID NO: 171); position 871 of T2R40 (SEQ ID NO: 171); position 380 of T2R41 (SEQ ID NO: 185); position 584 of T2R41 (SEQ ID NO: 185); position 103 of T2R44 (SEQ ID NO: 193; position 484 of T2R44 (SEQ ID NO: 193); position 599 of T2R44 (SEQ ID NO: 193); position 649 of T2R44 (SEQ ID NO: 193); position 656 of T2R44 (SEQ ID NO: 193); position 680 of T2R44 (SEQ ID NO: 193); position 718 of T2R44 (SEQ ID NO: 193); position 827 of T2R44 (SEQ ID NO: 193); position 843 of T2R44 (SEQ ID NO: 193); position 106 of T2R46 (SEQ ID NO: 207); position 682 of T2R46 (SEQ ID NO: 207); position 749 of T2R46 (SEQ ID NO: 207); position 834 of T2R46 (SEQ ID NO: 207); position 862 of T2R46 (SEQ ID NO: 207); position 521 of T2R47 (SEQ ID NO: 215); position 577 of T2R47 (SEQ ID NO: 215); position 756 of T2R47 (SEQ ID NO: 215); position 94 of T2R48 (SEQ ID NO: 223); position 113 of T2R48 (SEQ ID NO: 223); position 376 of T2R48 (SEQ ID NO: 223); position 456 of T2R48 (SEQ ID NO: 223); position 673 of T2R48 (SEQ ID NO: 223); position 719 of T2R48 (SEQ ID NO: 223); position 799 of T2R48 (SEQ ID NO: 223); position 815 of T2R48 (SEQ ID NO: 223); position 895 of T2R48 (SEQ ID NO: 223); position 235 of T2R49 (SEQ ID NO: 239); position 421 of T2R49 (SEQ ID NO: 239); position 429 of T2R49 (SEQ ID NO: 239); position 442 of T2R49 (SEQ ID NO: 239); position 516 of T2R49 (SEQ ID NO: 239); position 706 of T2R49 (SEQ ID NO: 239); position 755 of T2R49 (SEQ ID NO: 239); position 764 of T2R49 (SEQ ID NO: 239); position 808 of T2R49 (SEQ ID NO: 239); position 155 of T2R50 (SEQ ID NO: 255); position 181 of T2R50 (SEQ ID NO: 255); position 608 of T2R50 (SEQ ID NO: 255); and position 595 of T2R60 (SEQ ID NO: 261).

wherein at least one of the nucleic acid molecules is a T2R44 variant-specific nucleic acid molecule spanning a SNP selected from T at position 103, C at position 423, A at position 599, G at position 649, T at position 680, A at position 718, G at position 744, G at position 827 and A at position 843 of SEQ ID NO: 33.

7. (Previously presented) The collection of claim 6, comprising at least one isolated T2R variant-specific nucleic acid molecule selected from T2R1, T2R3, T2R4, T2R5, T2R7, T2R8, T2R9, T2R10, T2R13, T2R14, T2R16, T2R38, T2R39, T2R40, T2R41, T2R43, T2R46, T2R47, T2R48, T2R49, T2R50, and T2R60.

8. (Currently amended) The collection of claim 6, comprising at least one isolated T2R variant-specific nucleic acid molecule from ~~every SNP listed in Table 7.~~ each of: position 332 of T2R1 (SEQ ID NO: 47); position 616 of T2R1 (SEQ ID NO: 47); position 349 of T2R3 (SEQ ID NO: 53); position 8 of T2R4 (SEQ ID NO: 61); position 17 of T2R4 (SEQ ID NO: 61); position 20 of T2R4 (SEQ ID NO: 61); position 186 of T2R4 (SEQ ID NO: 61); position 221 of T2R4 (SEQ ID NO: 61); position 268 of T2R4 (SEQ ID NO: 61); position 512 of T2R4 (SEQ ID NO: 61); position 77 of T2R5 (SEQ ID NO: 73); position 235 of T2R5 (SEQ ID NO: 73); position 338 of T2R5 (SEQ ID NO: 73); position 500 of T2R5 (SEQ ID NO: 73); position 638 of T2R5 (SEQ ID NO: 73); position 881 of T2R5 (SEQ ID NO: 73); position 254 of T2R7 (SEQ ID NO: 87); position 538 of T2R7 (SEQ ID NO: 87); position 640 of T2R7 (SEQ ID NO: 87); position 787 of T2R7 (SEQ ID NO: 87); position 788 of T2R7 (SEQ ID NO: 87); position 912 of T2R7 (SEQ ID NO: 87); position 142 of T2R8 (SEQ ID NO: 97); position 370 of T2R8 (SEQ ID NO: 97); position 496 of T2R8 (SEQ ID NO: 97); position 829 of T2R8 (SEQ ID NO: 97); position 922 of T2R8 (SEQ ID NO: 97); position 201 of T2R9 (SEQ ID NO: 109); position 381 of T2R9 (SEQ ID NO: 109); position 450 of T2R9 (SEQ ID NO: 109); position 560 of T2R9 (SEQ ID NO: 109); position 697 of T2R9 (SEQ ID NO: 109); position 867 of T2R9 (SEQ ID NO: 109); position 880 of T2R9 (SEQ ID NO: 109); position 467 of T2R10 (SEQ ID NO: 131); position 521 of T2R10 (SEQ ID NO: 131); position 691 of T2R10 (SEQ ID NO: 131); position 776 of T2R13 (SEQ ID NO: 133); position 256 of T2R14 (SEQ ID NO: 137); position 589 of T2R14 (SEQ ID NO: 137); position 301 of T2R16 (SEQ ID NO: 145); position 481 of T2R16 (SEQ ID NO: 145); position 516 of T2R16 (SEQ ID NO: 145); position 665 of T2R16 (SEQ ID

NO: 145); position 145 of T2R38 (SEQ ID NO: 165); position 239 of T2R38 (SEQ ID NO: 165); position 785 of T2R38 (SEQ ID NO: 165); position 820 of T2R38 (SEQ ID NO: 165); position 886 of T2R38 (SEQ ID NO: 165); position 578 of T2R39 (SEQ ID NO: 167); position 589 of T2R39 (SEQ ID NO: 167); position 560 of T2R40 (SEQ ID NO: 171); position 817 of T2R40 (SEQ ID NO: 171); position 871 of T2R40 (SEQ ID NO: 171); position 380 of T2R41 (SEQ ID NO: 185); position 584 of T2R41 (SEQ ID NO: 185); position 103 of T2R44 (SEQ ID NO: 193; position 484 of T2R44 (SEQ ID NO: 193); position 599 of T2R44 (SEQ ID NO: 193); position 649 of T2R44 (SEQ ID NO: 193); position 656 of T2R44 (SEQ ID NO: 193); position 680 of T2R44 (SEQ ID NO: 193); position 718 of T2R44 (SEQ ID NO: 193); position 827 of T2R44 (SEQ ID NO: 193); position 843 of T2R44 (SEQ ID NO: 193); position 106 of T2R46 (SEQ ID NO: 207); position 682 of T2R46 (SEQ ID NO: 207); position 749 of T2R46 (SEQ ID NO: 207); position 834 of T2R46 (SEQ ID NO: 207); position 862 of T2R46 (SEQ ID NO: 207); position 521 of T2R47 (SEQ ID NO: 215); position 577 of T2R47 (SEQ ID NO: 215); position 756 of T2R47 (SEQ ID NO: 215); position 94 of T2R48 (SEQ ID NO: 223); position 113 of T2R48 (SEQ ID NO: 223); position 376 of T2R48 (SEQ ID NO: 223); position 456 of T2R48 (SEQ ID NO: 223); position 673 of T2R48 (SEQ ID NO: 223); position 719 of T2R48 (SEQ ID NO: 223); position 799 of T2R48 (SEQ ID NO: 223); position 815 of T2R48 (SEQ ID NO: 223); position 895 of T2R48 (SEQ ID NO: 223); position 235 of T2R49 (SEQ ID NO: 239); position 421 of T2R49 (SEQ ID NO: 239); position 429 of T2R49 (SEQ ID NO: 239); position 442 of T2R49 (SEQ ID NO: 239); position 516 of T2R49 (SEQ ID NO: 239); position 706 of T2R49 (SEQ ID NO: 239); position 755 of T2R49 (SEQ ID NO: 239); position 764 of T2R49 (SEQ ID NO: 239); position 808 of T2R49 (SEQ ID NO: 239); position 155 of T2R50 (SEQ ID NO: 255); position 181 of T2R50 (SEQ ID NO: 255); position 608 of T2R50 (SEQ ID NO: 255); and position 595 of T2R60 (SEQ ID NO: 261).

9. (Currently amended) The collection of claim 6, further comprising at least one isolated T2R variant-specific nucleic acid molecule from each of SEQ ID NO: 49, 55, 57, 59, 63, 65, 67, 69, 71, 75, 77, 79, 81, 83, 85, 89, 91, 93, 95, 99, 101, 103, 105, 107, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 135, 139, 141, 147, 149, 151, 155, 157, 161, 163, 169, 173, 175, 177, 179, 181, 183, 187, 189, 191, 197, 199, 201, 203, 205, 209, 211, 213, 217, 219, 225, 227, 229, 231, 233, 235, 237, 241, 243, 245, 247, 249, 251, 253, 257, 259, and 263.

10. (Original) The collection of claim 9, wherein the isolated T2R variant-specific nucleic acid molecules have a sequence as shown in SEQ ID NO: 49, 55, 57, 59, 63, 65, 67, 69, 71, 75, 77, 79, 81, 83, 85, 89, 91, 93, 95, 99, 101, 103, 105, 107, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 135, 139, 141, 147, 149, 151, 155, 157, 161, 163, 169, 173, 175, 177, 179, 181, 183, 187, 189, 191, 197, 199, 201, 203, 205, 209, 211, 213, 217, 219, 225, 227, 229, 231, 233, 235, 237, 241, 243, 245, 247, 249, 251, 253, 257, 259, or 263.

11. (Original) The collection of claim 6, wherein each nucleic acid molecule is stored in a separate container.

12. (Original) The collection of claim 11, wherein the separate containers are wells of a microtiter plate or equivalent thereof.

13. (Previously presented) The collection of claim 6, wherein the nucleic acid molecules of the collection are affixed to a solid surface in an array.

14. (Original) The collection of claim 13, wherein the array is a microarray.

15. (Currently amended) The ~~microarray~~ collection of claim 14, which comprises nucleic acid molecules having the sequence as set forth in SEQ ID NO: 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, [[and]]or 263.

16. (Previously presented) The collection of claim 6, wherein the isolated T2R variant-specific nucleic acid molecules comprise:

(a) SEQ ID NOs: 47, 49, and 51;

(b) SEQ ID NOs: 53 and 55;

(c) SEQ ID NOs: 57, 59, 61 , 63, 65, 67, 69, and 71;

(d) SEQ ID NOs: 73, 75, 77, 79, 81, 83, and 85;

(e) SEQ ID NOs: 87, 89, 91, 93, and 95;

(f) SEQ ID NOs: 97, 99, 101, 103, 105, and 107;

(g) SEQ ID NOs: 109, 111, 113, 115, 117, 119, 121, and 123;

(h) SEQ ID NOs: 125, 127, 129, and 131;

(i) SEQ ID NOs: 133 and 135;

(j) SEQ ID NOs: 137, 139, and 141;

(k) SEQ ID NOs: 143, 145, 147, 149, and 151;

(l) SEQ ID NOs: 153, 155, 157, 159, 161, 163, and 165;

(m) SEQ ID NOs: 167 and 169;

(n) SEQ ID NOs: 171, 173, 175, and 179;

(o) SEQ ID NOs: 181, 183, and 185;

(p) SEQ ID NOs: 187, 189, 191, 193, 195, 197, and 199;

(q) SEQ ID NOs: 201, 203, 205, 207, 209, and 211;

(r) SEQ ID NOs: 213, 215, 217, and 219;

(s) SEQ ID NOs: 221, 223, 225, 227, 229, 231, 233, 235, and 237;

(t) SEQ ID NOs: 239, 241, 243, 245, 247, 249 and 251;

(u) SEQ ID NOs: 253, 255, 257, and 259;

(v) SEQ ID NOs: 261 and 263; or

(w) a combination of two or more of (a) through (v).

17-19. (Canceled)

20. (Allowed) An isolated nucleic acid molecule, encoding a T2R44 polypeptide isoform comprising an amino acid sequence selected from SEQ ID NO: 188, 190, 192, 198 and 200.

21. (Allowed) A vector comprising the isolated nucleic acid molecule of claim 20.

22. (Currently amended) [[A]]An isolated host cell comprising the vector of claim 21.

23. (Allowed) An isolated nucleic acid molecule comprising a nucleotide sequence encoding a T2R44 allele, wherein the nucleotide sequence is selected from SEQ ID NO: 187, 189, 191, 197, and 199.

24. (Allowed) A vector comprising the isolated nucleic acid molecule of claim 23.

25. (Currently amended) [[A]]An isolated host cell comprising the vector of claim 24.

26. (Withdrawn) A method of screening compounds useful for modulating bitter taste, comprising:

contacting a test compound with a host cell or membrane thereof that expresses a T2R44 taste receptor isoform encoded by the isolated nucleic acid molecule of claim 20; and

detecting a change in the expression of the nucleotide sequence or a change in activity of the T2R taste receptor, or detecting binding of the compound to the T2R44 taste receptor or detecting a change in the electrical activity of the host cell or a change in intracellular or extracellular cAMP, cGMP, IP3, or Ca^{2+} of the host cell.

27. (Withdrawn) The method of claim 26, wherein the gene product of said nucleotide sequence is fused to a sequence that facilitates localization to the cell membrane, wherein that sequence is at least 20 consecutive N-terminal amino acids of a rhodopsin protein.

28. (Withdrawn) The method of claim 26, wherein the cell is a eukaryotic cell.

29. (Canceled)

30. (Withdrawn) The method of claim 26 wherein a change in intracellular Ca^{2+} is detected by measuring

(1) a change in a calcium-sensitive dye dependent fluorescence in the cell, or

(2) a change in Fura-2 fluorescence in the cell.

31. (Canceled)

32. (Withdrawn) The method of claim 26, which is a high throughput method, comprising:

contacting in parallel a test compound with a collection of host cells or membranes thereof each of which expresses a different T2R44 taste receptor isoform encoded by an isolated nucleic acid molecule comprising a nucleotide sequence for a T2R44 allele, wherein the nucleotide sequence is selected from SEQ ID NO: 187, 189, 191, 197, and 199; and

detecting a change in the expression of at least one of the nucleotide sequences or a change in activity of at least one of the T2R44 taste receptors, or detecting binding of the compound to at least one of the T2R44 taste receptors or detecting a change in the electrical activity of at least one of the host cells or a change in intracellular or extracellular cAMP, cGMP, IP3, or Ca^{2+} of at least one of the host cells.

33. (Withdrawn) The method of claim 23, wherein the collection of host cells or membranes thereof are in the form of an array.

34. (Withdrawn) An *in vivo* method of screening compounds useful for modulating bitter taste, comprising:

contacting a test compound to a T2R44 taste receptor isoform encoded by the isolated nucleic acid molecule of claim 20; and

detecting a change in the activity of the T2R44 taste receptor, or detecting binding of the compound to the T2R44 taste receptor.

35. (Withdrawn) The method of claim 34, which is a high throughput method, comprising:

contacting in parallel a test compound with a collection of different T2R44 taste receptor isoforms encoded by the isolated nucleic acid molecules; and

detecting a change in the activity of at least one of the T2R44 taste receptors, or detecting binding of the compound to at least one of the T2R44 taste receptors.

36. (Withdrawn) The method of claim 35, wherein the collection of different T2R44 taste receptor isoforms are in the form of an array.

37-38. (Canceled)

39. (Withdrawn and currently amended) A method of determining a T2R44 genotype of a subject, comprising:

obtaining a test sample of DNA containing a T2R44 sequence of the subject; and

~~determining whether the subject has~~ detecting a polymorphism in the T2R44 sequence by contacting the test sample with the nucleic acid molecule of claim 1, wherein the polymorphism is selected from T at position 103, C at position 423, A at position 599, G at position 649, T at position 680, A at position 718, G at position 744, G at position 827 and A at position 843 of SEQ ID NO: 33.

40. (Withdrawn) A method of identifying a plurality of individuals who are genetically heterogeneous in the T2R44 gene, comprising:

determining the T2R genotype for a plurality of subjects using the method of claim 39; and

selecting a group of the subjects who are genetically heterogeneous in the T2R44 gene.

41. (Withdrawn) The method of claim 40, wherein the plurality of individuals are selected to represent the genetic profile of

(1) a geographically defined population; or

(2) Europeans, East Asians, or Africans.

42. (Canceled)

43. (Allowed) A kit for determining whether or not a subject has a selected T2R44 genotype or haplotype, comprising:

a container comprising at least one oligonucleotide specific for a T2R44 sequence comprising at least one polymorphism selected from T at position 103, C at position 423, A at position 599, G at position 649, T at position 680, A at position 718, G at position 744, G at position 827 and A at position 843 of SEQ ID NO: 33; and

instructions for using the kit, the instructions indicating steps for:

performing a method to detect the presence of variant T2R44 nucleic acid in the sample; and

analyzing data generated by the method, wherein the instructions indicate that the presence of the variant nucleic acid in the sample indicates that the individual has the selected T2R44 genotype or haplotype.

44. (Allowed) The kit of claim 43, further comprising a container that comprises a detectable oligonucleotide.

45-51. (Canceled)

52. (New) The collection of claim 6, comprising at least one isolated T2R variant-specific nucleic acid molecule from each of T2R1, T2R3, T2R4, T2R5, T2R7, T2R8, T2R9, T2R10, T2R13, T2R14, T2R16, T2R38, T2R39, T2R40, T2R41, T2R43, T2R46, T2R47, T2R48, T2R49, T2R50, and T2R60.